IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of voice recognition in a noise-ridden acoustic signal comprising:

a ~~phase~~ step of digitizing and subdividing the noise-ridden acoustic signal into a sequence of temporal frames[[,]];

a ~~phase~~ step of ~~parametrization~~ parameterizing ~~of~~ speech-containing temporal frames so as to obtain a vector of parameters, per speech containing frame, in the frequency domain, ~~this~~ the vector of parameters expressing the acoustic contents of ~~the~~ each speech containing frame[[,]];

a shape-recognition ~~phase~~ step in which the vectors of parameters are assessed with respect to references pre-recorded in a reference space during a preliminary learning ~~phase~~ step, so as to obtain recognition by the determining of at least one reference which is closest to the vector of parameters[[,]];

a ~~phase~~ step of reiterative searching for successive noise models in the sequence of temporal frames, a new noise model replacing a current noise model, [[a]] each noise model comprising several successive frames[[,]];

~~wherein the method comprises:~~

a ~~phase~~ step of searching for a noise transition between the new noise model and the current noise model[[,]]; and wherein,

when the noise transition has been detected, the method comprises a ~~phase~~ step of updating the reference space as a function of the new noise model, the ~~parametrization phase~~ parameterizing step including a step of matching the parameters to the new noise model.

Claim 2 (Currently Amended): A method of voice recognition according to claim 1, wherein the ~~phase~~ step of searching for a noise transition comprises a step of searching for an energy incompatibility and/or a step of searching for a spectral incompatibility between the new noise model and the current noise model, the detection of an incompatibility expressing a noise transition.

Claim 3 (Currently Amended): A method of voice recognition according to claim 2, wherein the step of searching for an energy incompatibility comprises ~~the~~ a comparison of the ratio between ~~the~~ a mean energy E_{newmod} of the new noise model and ~~the~~ a mean energy of the current noise model $E_{modcurr}$ with a low threshold S' and a high threshold S, an energy incompatibility being found if the ratio is outside the interval delimited by the two thresholds S, S'.

Claim 4 (Original): A method of voice recognition according to claim 3, wherein the step of searching for an energy incompatibility also comprises a comparison of the mean energy E_{newmod} of the new noise model and the mean energy of the current noise model $E_{modcurr}$ with an energy floor threshold E_{min} below which the noise is negligible, the energy incompatibility determined by the comparison of the ratio between the mean energy of the new noise model E_{newmod} and the mean energy of the current noise model $E_{modcurr}$ being ignored when the mean energy of the new noise model E_{newmod} and the mean energy of the current noise model $E_{modcurr}$ are both below the energy floor threshold E_{min}.

Claim 5 (Currently Amended): A method of voice recognition according to claim 2, wherein the step of searching for spectral incompatibility comprises, on the basis of spectral coefficients $B_{i,modcurr}$ $B_{i,newmod}$ respectively expressing ~~the~~ a spectral energy of ~~the~~ frames of

the current noise model and ~~the~~ a spectral energy of ~~the~~ frames of the new noise model in at least one frequency channel i, a comparison of the ratio between the spectral coefficient $B_{i,newmod}$ associated with the frequency channel i of the new noise model and the spectral coefficient $B_{i,modcurr}$ associated with the same frequency channel i of the current noise model with a low threshold Sf' and a high threshold Sf, a spectral incompatibility being found if the ratio is located outside the interval delimited by the two thresholds, Sf, Sf'.

Claim 6 (Currently Amended): A method of voice recognition according to claim 5, wherein the step of searching for a spectral incompatibility also comprises, for at least one frequency channel i, a comparison of the spectral coefficient $B_{i,newmod}$ of the new noise model in ~~this~~ the frequency channel i and of the spectral coefficient $B_{i,modcurr}$ of the current noise model in ~~this~~ the frequency channel i with a floor spectral coefficient $B_{i,min}$ associated with ~~this~~ the frequency channel i, namely a floor below which the noise is negligible, a spectral incompatibility determined by the comparison of the ratio between spectral coefficients being ignored when, for ~~this~~ the frequency channel i, the spectral coefficients of the new noise model and of the current noise model are both below the floor spectral coefficient $B_{i,min}$.

Claim 7 (Currently Amended): A method of voice recognition according to claim 1, wherein the ~~parametrization phase~~ parameterizing step comprises a step of determining spectral coefficients $B_{i,par}$, each associated with a frequency channel i each expressing a representation of ~~the~~ a spectral energy of a frame containing speech in the frequency channel i, the parameter-matching step comprising a determining, for each spectral coefficient $B_{i,par}$, of a robustness operator $OpRob(B_{i,par})$, ~~this~~ the robustness operator expressing the confidence to be attached to the spectral coefficient $B_{i,par}$ with respect to the noise level of the new noise model in the same frequency channel i, a weighting of the spectral coefficient $B_{i,par}$ with the

robustness operator OpRob($B_{i,par}$), and a determining of the vector of parameters on the basis of the weighted spectral coefficients.

Claim 8 (Currently Amended): A method according to claim 7, wherein the robustness operator OpRob($B_{i,par}$) verifies the following relationship:

$$OpRob(B_{i,par}) = \left\{ \max\left(0[[,]].25 + \frac{B_{i,par} - P(B_{i,new\,mod})}{B_{i,par} + 2P(B_{i,new\,mod})}, 0 \right) \right\}^2$$

$B_{i,par}$ being the spectral coefficient and $P(B_{i,newmod})$ being a parameter dependent on the noise level of the new noise model having activated the transition in the frequency channel i.

Claim 9 (Currently Amended): A method of voice recognition according to claim 1, further comprising a ~~wherein the~~ reference space updating ~~phase~~ step ~~comprises~~ comprising the following operations, on the basis of ~~the~~ basic spectral coefficients each associated with a frequency channel i, each expressing ~~the~~ a spectral energy of a basic frame obtained during the learning ~~phase~~ step:

the determining of a robustness operator OpRob($B_{i,base}$) for each basic spectral coefficient $B_{i,base}$, ~~this~~ the robustness operator expressing the confidence to be attached to the basic spectral coefficient $B_{i,base}$ with respect to ~~the~~ a noise level of the new noise model in the same frequency channel i, ~~the~~ a weighting of the basic spectral coefficients $B_{i,base}$ with the respective robustness operators OpRob($B_{i,base}$), and ~~the~~ preparation of the updated references with the weighted basic spectral coefficients.

Claim 10 (Original): A method according to claim 9, wherein the robustness operator $OpRob(B_{i,base})$ for the updating of the reference space verifies the following relationship:

$$OpRob(B_{i,base}) = \left\{ \max\left(0.25 + \frac{B_{i,base} - P(B_{i,new\,mod})}{B_{i,base} + 2P(B_{i,new\,mod})}, 0 \right) \right\}^2$$

$B_{i,base}$ being the basic spectral coefficient and $P(B_{i,newmod})$ being a parameter depending on the noise level of the new noise model having activated the transition, in the frequency channel i.

Claim 11 (Original): A method according to claim 9, in which the references are prepared on the basis of compressed basic spectral coefficients, wherein the method uses a conversion table to convert the compressed basic spectral coefficients into compressed and weighted basic spectral coefficients.

Claim 12 (Currently Amended): A method according to claim 11, wherein the conversion table contains the non-compressed basic spectral coefficients $B_{i,base}$ obtained by application of ~~the~~ <u>a</u> reverse of the compression function to the compressed basic coefficients and wherein the method comprises:

[[a]] determining ~~of~~ the robustness operator $OpRob(B_{i,base})$ for each of the non-compressed basic spectral coefficients $B_{i,base}$, a weighting of the non-compressed basic spectral coefficients $B_{i,base}$, a compression of the non-compressed and weighted basic spectral coefficients so as to obtain the compressed and weighted basic spectral coefficients.

Claim 13 (Currently Amended): A method according to claim 1, using, as references, a sequence of temporal frames corresponding to one or more words, ~~this~~ <u>the</u> sequence of

frames being identified by a series of vectors of parameters, ~~these~~ said parameters being obtained by compression of spectral coefficients.

Claim 14 (Currently Amended): A method according to claim 1, using, as references, a sequence of temporal frames corresponding to one or more phonemes, ~~this~~ said sequence of frames being identified by ~~the~~ a center and ~~the~~ a standard deviation of a Gaussian function, ~~this~~ said center and ~~this~~ said standard deviation depending on the parameters of the vectors of parameters of the frames.

Claim 15 (Currently Amended): A method according to claim 1, comprising a ~~phase~~ step of noise-suppression in the speech-containing temporal frames before the ~~parametrization phase~~ parameterizing step.

Claim 16 (Currently Amended). A system of voice recognition in a noise-ridden acoustic signal ~~for the implementation of the method according to one of the claims 1 to 15, wherein the system comprises~~ comprising:

means to acquire the noise-ridden acoustic signal, digitize ~~it~~ the noise-ridden acoustic signal and subdivide ~~it~~ the noise-ridden acoustic signal into temporal frames[[,]];

a parametrization chain to translate the temporal frames containing speech into vectors of parameters in the frequency domain[[,]];

shape-recognition means with a reference space having references acquired during a learning stage, to compare the vectors of parameters coming from the parametrization chain with the references, so as to obtain recognition by the determination of a reference that most closely approaches the vectors of parameters[[,]];

means for ~~modelling~~ modeling the noise to reiteratively prepare noise models, a new noise model replacing a current noise model[[,]];

means for detecting a noise transition between the new noise model and the current noise model[[,]];

means to match the parametrization chain with ~~the noise of~~ the new noise model having activated the noise transition[[,]]; and

means to update the references of the reference space as a function of ~~the~~ a noise level of the new noise model having activated the noise transition.

Claim 17 (Currently Amended): A system of voice recognition according to claim 16, wherein the means used to update the references of the reference space comprise a first memory space to store the updated references, ~~these~~ said updated references having to replace current references used for shape recognition before the detection of the noise transition, ~~these~~ said current references being stored in a second memory space.

Claim 18 (Currently Amended): A voice-recognition system according to claim 16, comprising a memory space to store compressed basic spectral coefficients obtained from basic spectral coefficients each associated with a frequency channel i, ~~these~~ said basic spectral coefficients each expressing the spectral energy of a basic frame coming from the learning stage, a conversion table to convert the compressed basic spectral coefficients into compressed and weighted basic spectral coefficients, each weighted by a robustness operator $OpRob(B_{i,base})$ as a function of the noise level of the new noise model having activated the noise transition and of the basic spectral coefficient ($B_{i,base}$) to be weighted, ~~these~~ said compressed and weighted basic spectral coefficients being used for the updating of the references of the reference space.

Claim 19 (Currently Amended): A voice-recognition system according to claim 16, comprising means for noise-suppression in the speech-containing temporal frames before the speech containing temporal frames are translated by ~~their~~ said parametrization chain.

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